MSCICT23028

ΙΩΑΝΝΗΣ ΚΛΑΔΗΣ

Τελική Εργασία στην "Εισαγωγή στον Αντικειμενοστραφή προγραμματισμό"

Η κλάση Department έχει όλη την λειτουργικότητα του προγράμματος και η κλάση Main είναι η κύρια επαφή με τον χρήστη.

Η κλάση Student και Professor είναι ''παιδία'' της κλάσης Person οπότε στο πλαίσιο του Φοιτητολογίου θα μπορούσαν να χαρακτηριστούν και οι δύο με τον κοινό όρο department members. Γενικά οι ενέργειες που αφορούν τους μαθητές και τους καθηγητές υλοποιούνται με μία κοινή μέθοδο όπου ο χρήστης επιλέγει αν αφορά μαθητή ή καθηγητή και πραγματοποιούνται οι αντίστοιχες ενέργειες λόγω της κληρονομικότητας και του πολυμορφισμού.

Κατά την εκκίνηση και την ολοκλήρωση του προγράμματος φορτώνονται και αποθηκεύονται αντιστοίχως τα δεδομένα του προγράμματος από αρχεία CSV.

students.csv – περιέχει διάφορους φοιτητές και τα στοιχεία τους.
professor.csv – περιέχει διάφορους καθηγητές και τα στοιχεία τους.
courses.csv – λίστα με όλα τα μαθήματα.
studentsReg.csv – περιέχει λίστα με φοιτητές και τα μαθήματα που είναι εγγεγραμμένοι.
professorsReg.csv - περιέχει λίστα με καθηγητές και τα μαθήματα που διδάσκουν.
grades.csv – περιέχει τις βαθμολογίες των φοιτητών.

Όσον αφορά την προσέγγιση της ανάπτυξης του προγράμματος και την λειτουργία των επιμέρους μεθόδων των κλάσεων του προγράμματος υπάρχουν επεξηγηματικά σχόλια στο source code.

Παρακάτω θα γίνει μια παρουσίαση της εφαρμογής δηλαδή μία επίδειξη όλων των μεθόδων του προγράμματος.

Παρακάτω παραθέτω φωτογραφίες από την κατάσταση των αρχείων csv πριν την εκκίνηση του προγράμματος.

students.csv

	A	B	C	D	E
1	Γιάννης Παπαδόπουλος	john@uniwa.gr	6987566655	MSCICT23009	1
2	Γιώργος Γεωργίου	gg@uniwa.gr	6954398219	MSCICT23010	2
3	Ελένη Ρουσίδου	elrou@uniwa.gr	6976545566	MSCICT23006	2

professors.csv

	A	B	C	D	E
1	Χρήστος Αγγελόπουλος	chris@uniwa.gr	6945432333	003	Databases
2	Κώστας Αποστόλου	kostas@uniwa.gr	6954665534	001	Networks

courses.csv

	A	B	C
1	ICT101	Databases	1
2	ICT102	Networks	1
3	ICT103	C	1
4	ICT104	Digital Systems	1
5	ICT105	Java	2
6	ICT106	Network Security	2
7	ICT107	Computer Architecture	2
8	ICT108	Operating Systems	2

grades.csv

	A	B	C
1	MSCICT23010	ICT101	9.5
2	MSCICT23010	ICT102	10.0
3	MSCICT23010	ICT103	6.4
4	MSCICT23010	ICT104	7.2
5	MSCICT23006	ICT101	10.0
6	MSCICT23006	ICT102	8.5
7	MSCICT23006	ICT103	7.8

professorsReg

	A	B	C
1	003	ICT101	
2	003	ICT102	
3	001	ICT103	
4	001	ICT104	
5			

studentsReg

	A	B	C
1	MSCICT23009	ICT101	
2	MSCICT23009	ICT102	
3	MSCICT23009	ICT103	
4	MSCICT23009	ICT104	
5	MSCICT23010	ICT105	
6	MSCICT23010	ICT106	
7	MSCICT23010	ICT107	
8	MSCICT23010	ICT108	
9	MSCICT23006	ICT105	
10	MSCICT23006	ICT106	

Καταρχάς έχουμε δημιουργήσει δύο μεθόδους ώστε να δείχνουμε όλα τα μέλη του τμήματος και όλα τα μαθήματα.

```
      M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 1
Type '1' to show all Students or '2' to show all Professors or '3' to show all Department Members: 1

STUDENTS
--------------------------------------
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
```

```
      M E N U
-------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 1
Type '1' to show all Students or '2' to show all Professors or '3' to show all Department Members: 2

PROFESSORS
--------------------------------------
Name: Χρήστος Αγγελόπουλος Email: chris@uniwa.gr Phone: 6945432333 PID: 003 Discipline: Databases
Name: Κώστας Αποστόλου Email: kostas@uniwa.gr Phone: 6954665534 PID: 001 Discipline: Networks
```

```
      M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 1
Type '1' to show all Students or '2' to show all Professors or '3' to show all Department Members: 3

DEPARTMENT MEMBERS
----------------------------------------
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Χρήστος Αγγελόπουλος Email: chris@uniwa.gr Phone: 6945432333 PID: 003 Discipline: Databases
Name: Κώστας Αποστόλου Email: kostas@uniwa.gr Phone: 6954665534 PID: 001 Discipline: Networks
```

```
      M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 2
ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2
```

1. Εισαγωγή, Διόρθωση και Διαγραφή στοιχείων φοιτητή

```
     M E N U
---------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 5
Type '1' for Student or '2' for Professor: 1
Give student's name:
Name should have at least one character
Give student's name: Μαρία Αλεξιάδη

Give student's email: maria@gmail.com
Email should have the domain @uniwa.gr

Give student's email: maria@uniwa.gr

Give student phone: 6976
Phone should have the format 69xxxxxxxx

Give student phone: 6978654553

Give student am: MSC004
AM should have the format MSCICTxxxxx

Give student am: MSCICT23009
AM already exists

Give student am: MSCICT23007

Give student's semester: A
InputMismatch: Semester must be an integer. Please try again.

Give student's semester: 0
Semester should be bigger than zero

Give student's semester: 3
```

```
     M E N U
-------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 1
Type '1' to show all Students or '2' to show all Professors or '3' to show all Department Members: 1

STUDENTS
------------------------------------
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654553 AM: MSCICT23007 Semester: 3
```

```
     M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14]....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 6
Type '1' to edit student or '2' to edit professor: 1



STUDENTS
---------------------------------------
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654345 AM: MSCICT23007 Semester: 2
Give the am of the student you want to edit: MSCICT23009
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Give new student name (Press enter to leave the old one): Γιώργος Παπαδόπουλος
Give new student phone (Press enter to leave the old one):
Give new student email (Press enter to leave the old one):
Give new student am (Press enter to leave the old one):
Give new student's semester (Press enter to leave the old one): 3
```

```
Choose : 1
Type '1' to show all Students or '2' to show all Professors or '3' to show all Department Members: 1

STUDENTS
---------------------------------------
Name: Γιώργος Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 3
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654345 AM: MSCICT23007 Semester: 3
```

Σενάριο εισαγωγής ορθού μητρώου και επιτυχής διαγραφή φοιτητή.

```
      M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 7
Type '1' to delete student or '2' to delete professor: 1

STUDENTS

STUDENTS
----------------------------------------
Name: Γιάννης Παπαδόπουλος Email: john@uniwa.gr Phone: 6987566655 AM: MSCICT23009 Semester: 1
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654345 AM: MSCICT23007 Semester: 3
Give the am of the student you want to delete: MSCICT23009
```

```
STUDENTS
----------------------------------------
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654345 AM: MSCICT23007 Semester: 3
```

Επίσης παραθέτω το σενάριο εισαγωγής λάθους μητρώου.

```
      M E N U
-------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 7
Type '1' to delete student or '2' to delete professor: 1

STUDENTS

STUDENTS
------------------------------------
Name: Γιώργος Γεωργίου Email: gg@uniwa.gr Phone: 6954398219 AM: MSCICT23010 Semester: 2
Name: Ελένη Ρουσίδου Email: elrou@uniwa.gr Phone: 6976545566 AM: MSCICT23006 Semester: 2
Name: Μαρία Αλεξιάδη Email: maria@uniwa.gr Phone: 6978654345 AM: MSCICT23007 Semester: 3
Give the am of the student you want to delete: MSCICT23001
Student with AM MSCICT23001 doesn't exist
```

2. Εισαγωγή, Διόρθωση και Διαγραφή στοιχείων καθηγητή

Όπως αναφέραμε και στην περιγραφή λειτουργίας του προγράμματος με την βοήθεια της κληρονομικότητας και του πολυμορφισμού, η εισαγωγή, διόρθωση και διαγραφή καθηγητή πραγματοποιείται με τις ίδιες μεθόδους και τις κατάλληλες δομές ελέγχου.

3. Εισαγωγή, Διόρθωση και Διαγραφή στοιχείων μαθήματος

```
      M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14]....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 8
Give course's id: ICT9
ID should have the format ICTxxx
Give course's id: ICT108
ID already exists
Give course's id: ICT109
Give course's name: Android
Give course's semester: 3
```

```
Choose : 2
ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2
ID: ICT109 Name: Android Semester: 3
```

```
      M E N U
---------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14]....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 9

COURSES

ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2
ID: ICT109 Name: Android Semester: 3
Give the id of the course you want to edit: ICT109
Give new course id (Press enter to leave the old one):
Give new course name (Press enter to leave the old one): Android Applications
Give new course semester (Press enter to leave the old one): 3
```

```
ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2
ID: ICT109 Name: Android Applications Semester: 3
```

```
     M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14]....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 10
Give the id of the course you want to delete: ICT109
     M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14]....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 2
ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2
```

4. Ανάθεση μαθήματος/μαθημάτων σε καθηγητή (το οποίο διδάσκει)

Βλέπουμε παρακάτω τα μαθήματα που διδάσκει ο καθηγητής Χρήστος Αγγελόπουλος τα οποία έχουν διαβαστεί από το professorReg.csv κατά την εκκίνηση του προγράμματος.

```
PROFESSORS
-------------------------------------
Name: Χρήστος Αγγελόπουλος Email: chris@uniwa.gr Phone: 6945432333 PID: 003 Discipline: Databases
Name: Κώστας Αποστόλου Email: kostas@uniwa.gr Phone: 6954665534 PID: 001 Discipline: Networks
Give the id of the professor: 003

Courses of Χρήστος Αγγελόπουλος
-------------------------------------
Databases
Networks
```

Στην συνέχεια θα αναθέσουμε άλλο ένα μάθημα στον εν λόγω καθηγητή.

```
     M E N U
--------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 11
Type '1' for student or '2' for professor: 2
PROFESSORS
-------------------------------------
Name: Χρήστος Αγγελόπουλος Email: chris@uniwa.gr Phone: 6945432333 PID: 003 Discipline: Databases
Name: Κώστας Αποστόλου Email: kostas@uniwa.gr Phone: 6954665534 PID: 001 Discipline: Networks
Give the id of the professor: 003
COURSES
-------------------------------------
ID: ICT101 Name: Databases Semester: 1
ID: ICT102 Name: Networks Semester: 1
ID: ICT103 Name: C Semester: 1
ID: ICT104 Name: Digital Systems Semester: 1
ID: ICT105 Name: Java Semester: 2
ID: ICT106 Name: Network Security Semester: 2
ID: ICT107 Name: Computer Architecture Semester: 2
ID: ICT108 Name: Operating Systems Semester: 2

Give the id of the course you want to register for professor Χρήστος Αγγελόπουλος: ICT103
```

```
      M E N U
----------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7].....Delete Department Member
[8]......Add Course
[9].....Edit Course
[10]....Delete Course
[11]....Assign Course to Department Member
[12]....Show Department Member Courses
[13]....Show Student's Grades
[14].....Register Grade to Student
[15]....Display Average Grade by Student
[16]....Display Average Grade by Course
[17]....E x i t

Choose : 12
Type '1' for student or '2' for professor: 2
PROFESSORS
------------------------------------
Name: Χρήστος Αγγελόπουλος Email: chris@uniwa.gr Phone: 6945432333 PID: 003 Discipline: Databases
Name: Κώστας Αποστόλου Email: kostas@uniwa.gr Phone: 6954665534 PID: 001 Discipline: Networks
Give the id of the professor: 003

Courses of Χρήστος Αγγελόπουλος
------------------------------------
Databases
Networks
C
```

5. Ανάθεση μαθήματος/μαθημάτων σε φοιτητή (το οποίο διδάσκεται)

Όπως αναφέραμε και στην περιγραφή λειτουργίας του προγράμματος με την βοήθεια της κληρονομικότητας και του πολυμορφισμού, η ανάθεση μαθήματος σε φοιτητή πραγματοποιείται με τις ίδιες μεθόδους και τις κατάλληλες δομές ελέγχου.

6. Καταχώρηση βαθμολογίας σε φοιτητή

Παρακάτω φαίνονται οι υφιστάμενες βαθμολογίες του φοιτητή Γιώργος Γεωργίου.

```
        M E N U
-------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 13
Give student's am: MSCICT23010

Grades of Γιώργος Γεωργίου
------------------------------------
CourseID: ICT101 Grade: 9.5
CourseID: ICT102 Grade: 10.0
CourseID: ICT103 Grade: 6.4
CourseID: ICT104 Grade: 7.2
```

Στις παρακάτω εικόνες βαθμολογήσαμε τον εν λόγω φοιτητή στο μάθημα ICT105 (Java).

```
        M E N U
-------------------
[1]......Show Department Members
[2]......Show Courses
[3]......Search Department Member by ID
[4]......Search Course by ID
[5]......Add Department Member
[6]......Edit Department Member
[7]......Delete Department Member
[8]......Add Course
[9]......Edit Course
[10].....Delete Course
[11].....Assign Course to Department Member
[12].....Show Department Member Courses
[13].....Show Student's Grades
[14].....Register Grade to Student
[15].....Display Average Grade by Student
[16].....Display Average Grade by Course
[17].....E x i t

Choose : 14
Give student's am: MSCICT23010
Give course's id: ICT105

Give grade for course Java and student Γιώργος Γεωργίου: 8.5
```

```
Grades of Γιώργος Γεωργίου
------------------------------------
CourseID: ICT101 Grade: 9.5
CourseID: ICT102 Grade: 10.0
CourseID: ICT103 Grade: 6.4
CourseID: ICT104 Grade: 7.2
CourseID: ICT105 Grade: 8.5
```

Επίσης εξετάζεται η περίπτωση να έχει ήδη ο φοιτητής βαθμολογία στο μάθημα που προσπαθούμε να βαθμολογήσουμε

```
Choose : 14
Give student's am: MSCICT23006
Give course's id: ICT101
The student already has a grade for this course
```

Σαν τελευταίο σενάριο εξετάζεται η περίπτωση να μην έχει βαθμολογία στο μάθημα άλλα να μην είναι εγγεγραμμένος σε αυτό.

```
Choose : 14
Give student's am: MSCICT23006
Give course's id: ICT104
The student is not registered in this course
```

7. Εμφάνιση στατιστικών (μέσου όρου) βαθμολογιών ανά φοιτητή και ανά μάθημα

Πρώτα θα δείξουμε τον μέσο όρο βαθμολογιών ανά φοιτητή.

```
Choose : 15
The average grade score for Γιώργος Γεωργίου is 8.32
The average grade score for Ελένη Ρουσίδου is 8.77
```

Στην συνέχεια θα δείξουμε τον μέσο όρο ανά μάθημα.

```
Choose : 16
The average grade score for Databases is 9.75
The average grade score for Networks is 9.25
The average grade score for C is 7.10
The average grade score for Digital Systems is 7.20
The average grade score for Java is 8.50
```

Με την ολοκλήρωση του προγράμματος όλες οι τροποποιήσεις που πραγματοποιήθηκαν αποθηκεύονται αυτόματα στα αντίστοιχα csv αρχεία.

students.csv

	A	B	C	D	E	
1	Γιώργος Γεωργίου	gg@uniwa.gr	6954398219	MSCICT23010	2	
2	Ελένη Ρουσίδου	elrou@uniwa.gr	6976545566	MSCICT23006	2	
3	Μαρία Αλεξιάδη	maria@uniwa.gr	6978654553	MSCICT23007	3	

professorsReg.csv

	A	B	C	D	E	F
1	003	ICT101				
2	003	ICT102				
3	003	ICT103				
4	001	ICT103				
5	001	ICT104				
6						

grades.csv

	A	B	C	D	E
1	MSCICT23010	ICT101	9.5		
2	MSCICT23010	ICT102	10.0		
3	MSCICT23010	ICT103	6.4		
4	MSCICT23010	ICT104	7.2		
5	MSCICT23006	ICT101	10.0		
6	MSCICT23006	ICT102	8.5		
7	MSCICT23006	ICT103	7.8		
8	MSCICT23010	ICT105	8.5		

courses.csv

	A	B	C	D	E
1	ICT101	Databases	1		
2	ICT102	Networks	1		
3	ICT103	C	1		
4	ICT104	Digital Systems	1		
5	ICT105	Java	2		
6	ICT106	Network Security	2		
7	ICT107	Computer Architecture	2		
8	ICT108	Operating Systems	2		
9	ICT109	Android Applications	3		